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Poetry.

BEAUTY'S EYES.

Two little stars once left their skies,
On earth awhile to roam;
Poor silly fools! e'er to despise
Their bright, celestial home,
Far wandered they o'er hill and dale,
A resting-place to find;
But vanished soon, so runs the tale,
Nor left a trace behind.

As angry comets, next they swept
Across the lurid sky,
And wondering mortals gazed and wept,
To think destruction nigh.

At length a lovely maid was born,
Whose beauty art defies,
And the two wandering stars forlorn
Found rest in those dear eyes;
Where now they shine, so all divine,
That mortals bending at the shrine
Of virtue and of love,
Gaze on the light of stars so bright,
In ecstacy forgetting quite,
They ever shone above!

SUMMER MUSIC.

Through the open window,
As a welcome comer
Breathes upon my forehead
The warm breath of summer.

The old forests murmur
In the fragrant air;
Leafy elves are telling
Their sweet love-tales there.

And the rivulets ramble
Through the meadow grass,
To the bathing flowers
Singing as they pass.

In the fairy concert,
With sweet notes and high,
Gentle birds are thrilling
Music in the sky.

Through the open furrows
Gleams the rushing share,
While the plough-boy whistles
To the listening air.

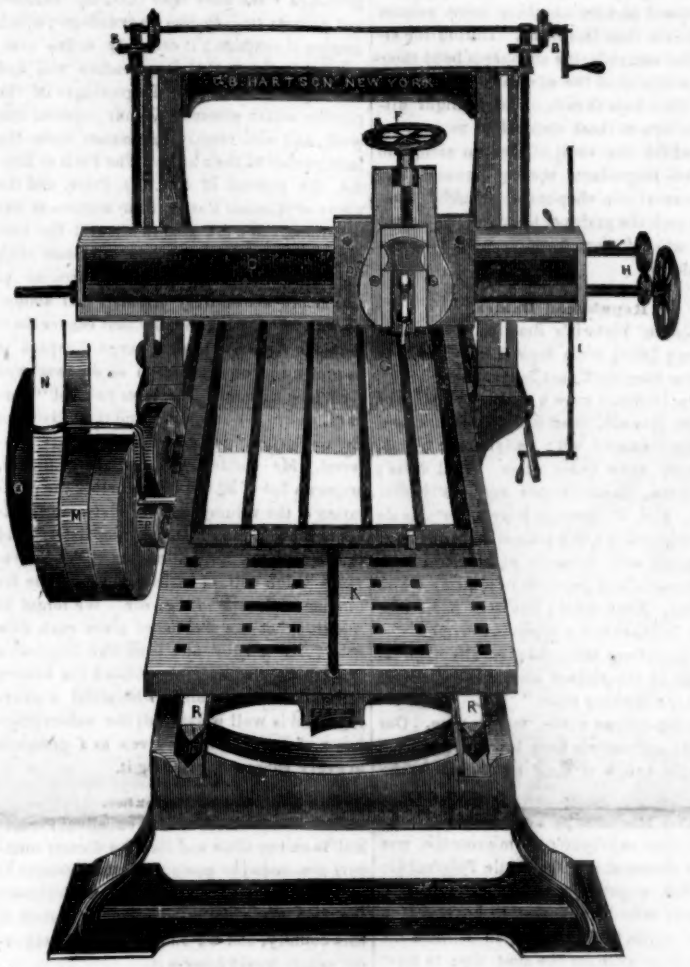
All is love and labor,
All is merry song—
May the days that follow
Swell the chorus long.

INFANCY.

How beautiful is infancy!
The bud upon the tree,
With all its young leaves folded yet,
Is not so sweet to me,
How day-like a young mother looks,
Upon the lovely thing,
And from its couch at her approach
How rosy sleep takes wing.

Thy joyous sports, thy jocund glee,
Thy gushes of glad mirth,
The clapping of thy rosy hands,
Thou merriest thing on earth!
Thou gift of heaven thou promise plant
On earth, in air, or sea,
There's nothing half so priceless, or
Beautiful as thee.

IRON PLANING MACHINE.



No person who is acquainted with mechanism, will doubt the assertion, "a good mechanic is known by his tools." The fact is, that good work cannot be expected to be accomplished with indifferent implements, and of this fact our machinists and manufacturers are becoming fully convinced. It is not always a low priced article that is a cheap one, but often the very reverse. It is better to have a good, strong, and perfect tool at once and, although it may be of a good price, yet it is cheapest in the end. Of this important particular in tool making, Mr G. B Hartson No. 42 Gold St., this City, seems to be fully aware. He has taken great pains and much care in the making of his machines, getting them up in the most perfect and complete form, and his success in this branch of business has been commensurate with the sagacity and enterprise manifested in conducting it. The above engraving is, that of a very beautiful iron planing machine, far superior to many that we have seen in principle, and the workmanship unsurpassed. Those who are acquainted with this kind of machinery will readily understand it, those who are not will be able to get some idea of it by the following description. This is a front view, somewhat foreshortened, but is a good engraving. K, is the bed plate on which the work is placed, it having places for the steadying pins. G, represents a plate under the operation of the Chisel fixed in the tool head E. F, is a small wheel to raise or lower the tool head by a screw in the rest D. On the tools which Mr. Hartson makes, there is an index on the rest, for a pointer, so as to make a cut at any desired angle. A A, is an upright frame with slots in it to raise or lower the slide C, by the screw rod and bevil gearing B B, to accomodate the thickness of work to be operated on. The work is moved forward to the chisel on the bed-plate by a cog pinion on the axle of P, working a rack on the bottom of the bed plate. N is the band upon the outside pulley that gives the forward motion. By a dog placed at any desired point on the bed plate, when it has travelled the distance forward required, a cam is struck, which by the lever clasp seen around the band N, shifts the said band to the inside pulley and the return movement is made. This is about five times faster than the forward movement, so that but little time is lost in the return. This arrangement is hidden in this view, but suffice it to say that O, is a plate wheel with the cogs inside, which by the inside pulley of the gang on the shaft of the pinion P, being loose thereon, but attached by a large pinion to work the plate wheel, the quick back motion is produced. The crooked lever I, and the spur wheel gearing H, are for the purpose of shifting the rest on the slide so as regularly to traverse the whole face of the work to be planed. R R, are two grooves of a wedge shape, for wedge rails of the bed plate to slide therein and keep it steady. The whole work is got up in the neatest and most solid form, combining strength with neat workmanship and all the improvements. We have repeatedly heard people express their high opinion of the machinery in the Cunard line of steamers. It is our opinion that much of their excellence depends upon the completeness and perfection of the machinery—the tools—in which the work is finished—no expense being spared by foreign workshops in this particular branch. This we are glad to see is an opinion now wisely entertained among ourselves, and no doubt the best results will follow. An examination of Mr. Hartson's machine will confirm all we have said of it.

RAIL ROAD NEWS.

Massachusetts Railroad.

A very valuable table of the Railroads in Massachusetts, was published in the Cambridge Chronicle of the 1st. of this month.

From it we learn that there has been an increase of Railroad Capital in the short space of three years of no less than $22,494,187, the whole amount being $60,009,884 an enormous increase indeed.

The gross receipts of all the roads was $5,279,154 86, which will be found to be about 13 per cent, on the capital actually employed

The expenses of all the roads amounted to $2,973,841 28, being about 57 per cent of the amount received, or 7 1-4 per cent, on the capital invested. We estimate the roads in operation to have cost $46,009,884, which is no doubt below their actual cost.

The net profits, as exhibited by the table, amounted to the sum of $2,268,907 49, or a little less than seven per cent, on the capital invested, estimating the capital employed by the dividend paying Roads at $33,009,885,—which is just, as the interest on their cost over that sum was paid out of the earnings, and carried to expense account.

Hartford and Providence Railroad.

The Directors of the Hartford and Providence Railroad Corporation advertise in the *Hartford Courant* for proposals, and are prepared to put the Road under contract to Willimantic, 29 miles. The Courant says, that, by the report of the Engineer, made to the Directors the route was shown to be much more feasible, than had been anticipated.

New York Railroads.

The Albany and Schenectady Railroad Company (formerly Mohawk,) have declared a dividend of 3 1-2 per cent. The receipts of this road in May were an increase of 16 per cent on the receipts of May, 1847.

The Syracuse and Rochester Railroad Company are now laying about one mile of heavy rail per day. The work is pushed forward with the utmost energy, and is done in a safe and durable manner.

Mobile and Ohio Railroad.

The twenty days for keeping open the books of subcsription to the Mobile and Ohio Railroad Company, expired on the 25th ult. The subscriptions amounted to six hundred and twenty thousand five hundred dollars, distributed among six hundred and eighty-one subscribers, being about ten shares to each person.

In 1847, 31,734,607 passengers were conveyed over British Railways. One passenger out of every 3,964,826 was killed, and one out of 755,586 injured.

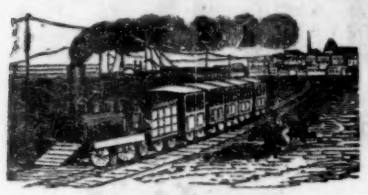
The Magnetic Telegraph Line to connect Halifax, Nova Scotia, with Calais, Maine, via New Brunswick, it is anticipated will be completed during the approaching autumn.

Montreal Mining Company.

The Bruce Mines originally belonging to the Huron and St. Mary's Copper Company, having been purchased by the Montreal Company, the most extensive arrangements are being made for mining operations at that point The steamboat Gore, on her trip down, carried a large quantity of lumber for the necessary storehouses and buildings now being erected at the mines, where it is the intention to employ for the season, a force of two hundred men.

Preserved Milk.

By a chemical process, milk fresh from the cow may be preserved sweet for an unlimited time. A Mr. Yates, in England, has made many successful experiments which prove that this great desideratum for domestic use has been achieved.



Ocean Steamers.

None of our new steamers, nor the British either, have made so quick a trip (not passage now) from Liverpool to this city, as the Great Western once did, viz. 12 days and 18 hours. The Great Britain made the next fastest, 13 days and 3 hours. The United States the next, 13 days and 6 hours. All these trips have been beaten by both the Hibernia and Acadia to Boston. We believe that the first trip of the Niagara to Boston was one of the best ever made. It will require time, however, to test the merits of all our new steamers, both those built here and in Scotland.—Often have we sincerely regretted the accident that occurred to the Great Britain. That vessel with her screw propeller never received a fair trial. The true test of superiority in ocean steamers, or any other, is the quickest trip, the fewest repairs, and the least consumption of fuel. All these things must be taken into consideration, in judging of steam ships. The last trip of the United States was a good one, but we expect far better yet from her. A correspondent suggests the adoption of rotary engines to steam navigation, as being superior to the reciprocating and suggests Schnebley's. We have never seen that rotary which could be applied for this purpose.—In 1846 Lord Cochrane's rotary engine (perhaps one of the best in the world) was applied to a sloop of war at Portsmouth, England, and was a failure. We have no feeling in joining uproariously regarding the merits of the American and British built steamers. The fact is that we may expect both lines to be equal in point of every comfort and improvement. When one gets something new, the other dare not be long behind, and the mechanics of both countries are perfectly qualified to build the first class of vessels—the price is the main object to get good work done. In the course of five years more, we think that 10 days will be the average passage out, and 12 back—we have no hope of any less.

Underground Street.

A new experiment in street making is about being tried in Philadelphia. The street, 25 feet in width, will be excavated so that the whole can be used for cellar room, while granite blocks 12 feet in width will form the cartway, supported in the centre of the street by a wall, and resting upon the foundation of the stores that are to line either side of the street. The blocks will be slightly inclined towards the centre of the street, where the gutter is to be situated. This is a gigantic undertaking, requiring a large quantity of granite, the street being no less than 380 feet in length. This is on account of the scarcity of land on our continent, and shows the right spirit of economy.

New Marriage Act.

The following language occurs in the New Marriage Act for Scotland, to go into effect in 1849: "And be it enacted that it shall not be lawful for the Registrar to register any marriage proposed to be contracted by registration unless one or both of the parties intending so to contract marriage shall have been resident within the district fourteen *clear* days previous to the registration."

This must effectually prevent marriages in that country where it rains 365 days in the year and the 6 hours obscured by clouds.

Preservation of Milk.

If milk be introduced into bottles, then well corked, put into a pan of cold water, and gradually raised to the boiling point, and after being allowed to cool, be taken out and set away in a cool place, the milk may be preserved perfectly sweet for upwards of half a year. Or it may be evaporated to dryness by a gentle heat and under constant stirring. A dry mass will thus be obtained, which when dissolved in water, is said to possess all the qualities of the best milk. It is called latteina in Italy.

The Alpine Horn.

The Alpine Horn, is an instrument made of the bark of a cherry tree, and like a speaking trumpet is used to convey sounds to a great distance. When the last rays of the sun gild the summit of the Alps, the shepherd who inhabits the highest peak of these mountains takes his horn, and cries with a loud voice, "Praised be the Lord." As soon as the neghboring shepherds hear him, they leave their huts and repeat these words. The sounds are prolonged many minutes, whilst the echoes of the mountains and grottos of the rocks repeat the name of God. Imagination cannot picture anything more solemn and sublime than this scene. During the silence that succeeds, the shepherds bend their knees, and pray in the open air, and then retire to their huts to rest. The sunlight gilding the tops of those stupendous mountains, upon which the vault of heaven seems to rest; the magnificent scenery around, and the voices of the shepherds sounding from rock to rock the praise of the Almighty, must fill the mind of every traveller with enthusiasm and awe.

Republican Dames.

At Queen Victoria's drawing room, two American ladies were dressed as follows, as we gather from the Court Journal:—

"Mrs. Hoffman wore a train and bodice of rich blue brocade, lined with white silk, and elegantly trimmed with hollyhock; blonde dress, over satin under dress. Head dress; court plume, blonde lappets and costly diamonds. Mrs. W. Simmin wore a costume *de cour* composed of a rich train of *moir antique*, ornamented with Brussels point lace; a superb Brussels lace petticoat over a rich white satin slip. Head dress: Brussels point lace lappets, feathers and a parure of diamonds.—Mrs. S 's costume attracted great attention. It was one of the richest and most beautiful worn at the drawing room."

Plain republican wives, we suppose. Our ministers and consuls have bravely got over the simple habits of their republican forefathers.

The Microscope and Riches.

When the oxy-hydrogen microscope was recently shown at the Newcastle Polytechnic Exhibition, a poor old woman, whose riches will never retard her ascent to heaven, took her seat in the lecture room, to witness the wonders that were for the first time to meet her sight. A piece of lace was magnified into a salmon net, a flea was metamorphosed into an elephant, other marvels were performed before the venerable dame, who sat in astonishment, staring open-mouthed at the disc. But when, at length, a milliner's needle was transformed into a poplar tree, and confronted her with its huge eye, she could hold no longer. "My goodness!" she exclaimed, "a camel *could* get through that! There's some hopes of the rich folks yet!"

Living in Common.

Several manufacturing establishments near Aberdeen, Scotland, have undertaken to supply the food of their operatives at a cheaper rate, and of a better quality than they themselves can procure. From 2,000 to 3,000 people are daily fed on this plan. The cost for breakfast and dinner, including bread, is 1½d. per meal; and the arrangements are so complete, that four hundred persons are breakfasted or dined in twenty minutes. For fifty gallons of barley broth the following are the ingredients:—43 lbs. meat, 28 lbs barley, 5 lbs peas, and vegetables to the value of 2s. or 2s 9d. The masters supply fuel, utensils, &c., and, after these items, the culinary experiment is self-supporting. The cause of this institution was the distance which the workers had to go for their meals, the poverty of their diet, and their constant inability to labor.

White Fish.

The harbor of Bridgeport, Ct., one day lately, was almost one solid mass of fish. From the beacon to the bridge, so thick were they that persons on board vessels passing up and down the harbor, and at the docks, could pull up pails full of them for some time. There was a great commotion in the harbor and no mistake. No doubt millions could have been caught with a net.

LITERARY NOTICES.

Holden's Dollar Magazine.

Our readers will find in the Scientific American of this week, a Prospectus of this really valuable magazine. It commences its 2nd volume with the July No., and presents some features which render it the *best Dollar Magazine now published in this country.* We say this, after taking in consideration the $5 Magazines,—for Holden's contains double the reading matter of those, is printed on paper nearly as good as theirs, and contains in each number from *twelve to twenty engravings.* We have seen the July number, and with its *twenty-two engravings* (which number it contains,) it certainly defies competition in the world! Our readers will find some specimens of the Engravings in the circular which accompanies our paper of this week, and will readily pronounce them the most perfect of their kind. The Falls of Reydal, the portrait of Rev. Dr. Potts, and the views of Windsor Castle, bear witness to our assertions. We are glad to see that the literary merit of the magazine increases with the other improvements. The articles of this month are entirely original, and stamped with an air of originality that ensure them readers. The article on George Lippard is as pretty a piece of criticism as we have read for a long time, and the tales entitled "Bernard, a story for Hunters," and the "Battle of Eutaw Springs" we have read with great interest. Mr. Holden will, we are confident, acquire a list of 50,000 names before the expiration of the volume, and we advise our readers to send in their names immediately, and thus secure the first impression of the Engravings which will, of course be preferable for binding at the end of the year. We forgot to mention that the Publisher gives each new subscriber a copy of a beautiful Illustrated work pubilshed by him, entitled the history of the Hat. It contains 27 beautiful engravings, and is well worth half the subscription price of itself. This is given as a premium to every subscriber wishing it.

Union Magazine.

The June number of this excellent Periodical is on our table and like the former numbers possesses too many important features to be all enumerated. The Union is decidedly the best three dollar monthly published in this country, and we should think almost every family would possess it.

It commences a new volume with the next number, and now is a favorable time to subscribe for it. Address Publisher of Union Magazine, 140 Nassau St. N. Y.

The American Architect.

No. 13 of this useful, excellent and cheap work is just published by Saxton, 205 Broadway. It is published in monthly parts, at 25 cents each. It presents some excellent architectural designs. Jones & Newman in this building are the able artists and it is produced at a price which comes within the reach of all.

The Playmate.

An interesting and instructive periodical by Berford & Co., No. 2 Astor House, has just been issued, and we pronounce the number before us the most interesting and instructive for young people of any that we have seen.

Mysteries and Miseries of New York.

The last number of this work has just been issued, and it is full of strange scenes and adventures. Those who have read the previous numbers will doubtless not lose the opportunity of reading this one.

Convict Labor.

D. D. Spencer, editor of the Ithaca Chronicle, and one of the board of Prison Inspectors, says that the laying aside of the 'cat,' in the punishment of convicts, has been attended with happy results. Contracts have been let at an advance of 25 to 30 per cent on old prices—showing that contractors find their hands more faithful under the new order of things, than when they were subject to the lash.

Man has 226 bones; the head and face 63 the trunk 39, the arms 64, and the lower extremities 60. There are in man 201 muscles or pairs of muscles.

Railroad Chairs.

Nothing is more acceptable to the Yankee mind, than a suggestion of a new idea, in manufactures. It often saves cords of sticks and invoices of whittling knives from destruction.

The health and comfort of travellers will be promoted, as well as economy of material, by substituting for the solid cushions that now line the backs and seats of railroad cars, a cloth made in the fashion of net-work, and so rounded that they do not present any sharp surfaces.

A base of iron ribbon net-work would also give great elasticity to the seats and backs, and save depth to the fabric of cloth.

To Stop Bees from Fighting.

A gentleman, a tetotaller, writes as follows:—"I will make known the best use to which spirits can be applied. Put a little alcohol, or almost any kind of spirits, on the bottom boards around and under the hive of belligerant bees, and it will allay their fury like a charm. Having heard of this remedy, I was induced to try it, and I found it to be a fixed fact."

New Cave.

A cave has been discovered at Mr. Clemmon's lime kiln, Cass Co., Arkansas, surpassing in beauty if not in extent, the Salt Petre cave. It has not yet been explored sufficiently to know the size, but it is wonderful. The discovery was made while blasting the rock for lime.

Anthracite in Russia.

Prof. Murchison informs us that all the coal fields in Russia have the same bearing (N. E. and S. W.) as ours. And several of them whose veins are bituminons at one part of the basin, become anthracite at the other as in Wales.

He finds as an invariable law, that as the coal seams run from the soft to the hard variety, the accompanying limestones thin out, and all the grits and shales become harder. Hence the transition can be readily foreknown by inspection of the surface. He therefore deduces that it is to the nearer approach of igneous rocks to the surface, that we owe the conversion of bituminous coal into anthracite.

Caution.

Never enter a sick room in a state of perspiration, as the moment you become cool, your pores absorb. Do not approach contiguous diseases with an empty stomach, nor sit between the sick and the fire, because the heat attracts the thin vapor.

A Nice Point of Law.

It has been suggested to our friend Mr. Briefless, says Punch, that his opinion would be very valuable on the question, whether a man who dies before he has settled with his creditors, may be considered to have shown an undue preference in paying the debt of Nature before his other liabilities.

The favorite U. S. Frigate Constitution, which has been in the Dry Dock, Charlestown, since February last, was taken out on Saturday, having been thoroughly repaired from stem to stern. She is to be fitted for sea with all despatch.

Orders have been received at Birmingham, England, for 30,000 stand of arms for France and 30,000 for Denmark, to be supplied with all possible expedition.

The steam ship Niagara had a severe passage out, and on the 26th ult. shipped a heavy sea which carried overboard two of her crew.

A few weeks since, a gentleman in Enford, England, shot a pigeon, to the neck of which was attached a label of red morocco leather bearing the words, "Boston, Jan. 6, 1848."

Some sound beams formed of the wood of the mulberry tree, have been found in the ruins of Nineveh, where they are supposed to have been placed at least seven hundred years before Christ.

The territory we have acquired from Mexico by the late treaty is said to abound in gold, silver, quicksilver, pearls, iron, coal, corn and wine.

Fancy Weaving.

By the term *fancy weaving* we mean the weaving of those small patterns which are produced in looms mounted with leaves of headles; and of which we have already given sufficient explanation in the preceding articles.

A complete description of the method of weaving figured patterns of *unlimited extent, by power*, we may give in some future number. At present we shall confine our remarks to those looms for weaving fancy texture which we consider to be of most practical utility, with such other information as has a direct bearing on the subject: and, in the outset, it may, perhaps, not be amiss to offer a few observations on fancy textures in general.

The smaller mountings, with leaves of headles, produce but a very limited variety of patterns, commonly a small diamond or lozenge figure, with a dot or speck in the centre, which gives it the resemblance of an eye, hence these figures are generally denominated bird-eye patterns. When these mountings, however, extend to eight leaves and upwards they admit of considerable diversity in flushing, tweeling, and plain texture, deviating from the formal figures of the bird-eye, and which now assume the appearance of what is called lined work.

The draught of lined work patterns may be considerably diversified by dividing the leaves into two equal portions, and drawing a few sets of the diamond draught on each portion alternately. This arrangement throws the group of small figures produced by each set of leaves, into alternate squares, somewhat resembling the dam board pattern. It is customary, however, to introduce an odd leaf into these mountings, immediately between the divisions, which serves as a point leaf to both sets.

Any number of concentric figures may be formed, by repeating the draught several times over the leaves in one direction, and returning in the contrary direction as often; so that should the draught diverge from the centre of the cloth toward each selvage, and the treading continue to the same extent, the pattern would be one great figure, composed of concentric squares, whose dimensions and variety would depend on the number of leaves and the arrangement of the raising cords.

Tweeled and plain textures.—For patterns of this kind, the mountings will consist of one set of plain, and one set of tweeling leaves, and the raising and sinking cords of the plain mounting are tied alternately on the tweeling treadles. It must be observed however, that in all mountings which have an odd number of tweeling leaves, double the number of treadles are requisite, in order to make the plain sheds alternate without interruption.

All tweeled stripes, which have an even number of tweeling leaves, are woven with one set of tweeling treadles, as the sheds of the plain parts can then be made alternate without any interruption.

Where the pattern will permit, the greater portion of the tweeling leaves should be sunk and therefore, the weft will appear to most advantage on the upper side of the cloth while in the loom. Besides this advantage, the strain on the machinery will not be near so great, in raising the smaller portion of leaves.

Sometimes the draught of a tweeled stripe is made in the diamond form, and the pattern produced is commonly called a dart stripe, or herring bone.

When a web is to be tweeled across, in order to form checks or the borders of handkerchiefs, the same number of leaves must be employed for the grounds that are requisite for the tweeled stripe. Thus, to convert a four leafed tweel stripe into a check, the common mounting of four leaves will produce a similar tweel across the web. But should the tweel be woven in a six or eight leafed tweel mounting, the plain parts must also be drawn on six or eight leaves, and each leaf is corded so as to rise and sink alternately in the plain parts, but to produce the tweel in the check. Hence it will appear, that a stripe with an odd number of tweeling leaves will not admit of a similar tweel for the cross-sing or check, as the ground leaves must always be divided into equal portions in weaving the plain parts.

Any tweel of an even number of leaves may be converted into stripes and checks; and if the stripe be formed into a dart or herring bone, the plain may be woven by a single over and over draught, and converted into a check the same as the stripe, by working over, the treadles in one direction for half of the cross stripe, and reversing the order of treading for the other.—Gilroy.

(*To be continued.*)

The Diamond

The diamond is the chief of stones, the hardest and most luminous, even phosphoric in the dark. Among the ancients the perfect crystals were alone valued They were not aware of that property which enables modern diamond workers to produce such brilliancy, viz. the use of its powder as the cutting agent. Many stones, which with our skill, are of enormous value, would have been rejected by them. The diamond, though said by Pliny to be so hard as to indent the hammer that strikes rather than break, in the direction of its axis of crystallization it fractures readily. This quality is used in the first stage of manufacture. It was in the year 1476 that Louis de Bergham, of Bruges, first discovered the property of powdered diamonds and the mode of application. Roses and table diamonds were the only kinds that he produced. The most perfect shape for reflection or refraction of light is that which is called brilliant, being two truncated pyramids united at their bases, the upper bearing to the lower in height above the girdle or line of injunction the proportion of five to ten, leaving the plane of truncation, or the culet of the lower pyramid, one fifth the superficies of the upper, or as for distinction it is called the table. The sides of the upper pyramid are covered with triangular facets; those which have their base on the base of the pyramid are called skill facets; those radiating from the table are called star facets. These in a well cut stone meet halfway down the sides. The lower pyramid is similarly treated, the skill facets being to the culet facets as three to two in length. This is the best form for bringing out the brilliancy of the diamond; if the two sides are perperpendicular, the light is radiated from the eye of the spectator, if too horizonal, a flatness of lustre arises, for the light passes more easily through the crystal in the direction of its poles than transversely through its laminæ; it is therefore in a thin brilliant less reflected. Experience has found that the discovery of larger diamonds bear a fixed proportion to that of smaller, so that the price is regulated accordingly,—the rule of calculation being that as the square of the weights so must be the value.

So jealous are the Indians of the size of their diamonds, that when they work them they make the facets follow the form in which the stone is found, be it a perfect or imperfect crystal; but rather than have this small loss, they are frequently content with them unwrought. Stones of extraordinary size are claimed as the property of the Prince, and transmitted as heir-looms, through generations, a small dot being made in one part of the stone by each possessor. The finest collection of gems in the world is in possession of the Shah of Persia, obtained by the plunder of Delhi about two centuries ago. Cardinal Mazarin, in the reign of Louis XIV., was the first who wore a brilliant. This truly scientific arrangement is therefore but of modern invention. Extraordinary interest attaches to some diamonds. The largest diamond in the world is in possession of the Great Mogul, in form and size equal to a hen's egg, weighing about 700 carats. The next in size is the Brazillian diamond in the possession of the Queen of Portugal, weighing 215 carats. The third is an oriental diamond, bought by Catharine, Empress of Russia. The fourth is the Pitt or Regent diamond, bought by the Duke of Orleans, once in the crown of France. To those who regard gems as symbols of ideas money seems but a poor parallel. The supplies of Europe are chiefly drawn from Brazil. The famed mines of Golconda are no longer worked, and but a limited quantity is still sent from Hindoostan. The great influx of diamonds which followed their discovery in South America alarmed the holders about the year 1735, lest diamonds should become as plentiful as pebble stones. They fell greatly in value, but have since regained their worth, and have for years maintained a value rather increasing than diminishing with the growing wealth af the world.

Tea Drinking in Siberia.

I found the domestic manners of the old families in Yakutsk quite as entertaining and agreeable as their conversation about their travels. Tea-drinking at the evening parties is here carried as far as it can go. Five or six cups are usually taken as a matter of course, and then another at the earnest entreaty of the lady of the house. The lady, in pressing her guests, ascends through all the ordinary phrases till she comes at last to the singular expressions *ponatujtes*, and *ponevolites*; that is make the endeavor and get the better of your reluctance. At the same time, great quantities of the cedar-nuts are eaten, to which they give the whimsical appellation of *rosgovorki*, chats or conversations. For here it is expected that young ladies, in the company of elderly people, will hold their tongues. They sit, in their fine dresses, along the sides of the room, only as ornaments and for show, and to give their mouths employment, they are allowed nuts instead of conversation. And in truth these nuts give the mouth sufficient occupation, for it requires no little skill to pick out the seeds, so that to the unpracticed, they seem better fitted for squirrels than for men. Ater tea, we were treated, as is customary in China and all the towns of Siberia, with *verenie*; that is, preserved fruits from Little Russia, and with dried apricots from Bokhara. Here was added a most savory and true Yakutskin product, which I was surprised to find was raw flesh. Large slices of beef are hung up in autumn on wooden trestles made for the purpose, and then are left for the whole winter in some airy place, exposed to the action of the sun and frost. They are fit for use at the beginning of spring. It is impossible to guess from the appearance of this article, what it is, for the whole is then perfectly dry; the fat has a waxy look, and is as white as snow, while the lean is a hard, cellular mass, with a whitish hue, where cut. When ever it is wanted for use, these slices are cut into very thin strips, which have so agreeable a flavor, that we cannot help admitting that the frost and open air are sufficient substitutes for the culinary art. I found the Siberian product far better adapted for eating than the *carne secco* in California and Brazil which is dried merely by the heat of the sun. The meat dried in this way in Yakutsk, keeps in summer quite unchanged. It is an inestimable resource for travellers, who are not always in a position to make a fire for cooking, and by long use, one grows so partial to this invigorating food, that even at home as at these tea parties, it is used as a dainty. —*Erman's Travels in Siberia.*

Dyak Iron Furnaces.

Intermixed with the soil and boulders of antimony are lumps of iron ore of the scoriolaceous character. The Dyaks, manufacture their best parangs, or swords, from this description of ore, by the following primitive but simple process. A small clay pit is dug, twelve inches in depth, three inches square at the bottom, and increasing to about nine inches at the top, this serves for the smelting furnace: then, with two large bamboo canes, about three feet long, and three to four inches in diameter, for cylinders,—a smaller cane inserted at the bottom, to act as a tweer, and a bundle of feathers as a piston,—the apparatus is completed. The tweers are so placed as to admit the jet of blast, about two and a half inches above the bottom of the pit,—the pistons are set in motion by the hand, and when all is prepared, the pit is about half filled with wood charcoal, on which is placed a certain quantity of iron ore; and in about the space of an hour and a half, the whole is fused. The slag is then allowed to run off, and the metal being partially cooled, it is taken out and placed in another similarly constructed furnace, where the process of heating is repeated, for the purpose of refining it. While in a liquified state, the metal is puddled, and then forged on a large stone (an iron anvil is preferred, if available.) By this process from two to three pounds of iron is made, sufficient for the manufacture of one parang, and when finished, the fibre is found to be fine and closely arranged; and the steel thus produced is equal to any made in Europe.

Chinese Dentist.

The dentist pitches his tent on arriving and unfolds to the admiring crowd a huge scroll, on which at the left side, are set forth his home, place of birth &c.; the rest of the scroll speaks of his fame and skill in cleansing, curing, and knowledge of the mouth in general; if this fails to obtain a customer, he opens box after box, producing hundreds of human teeth on which he lectures, declaring each large and decayed tooth to have belonged to a prince, duke, or high mandarin, who had honored him with his patronage and thus saved himself from the most terriffic tortures. Should a bystander at last be attracted and offer his mouth for inspection the instruments are produced, and if extraction be required, it is done with much expertness; he shows the instrument to the crowd, describes its use and power, and as an illustration of it, draws the tooth, while the sufferer imagines he is merely going to show how he would do it; if cleansing is required, he exhibits his instruments one by one, and using each, keeps up a chant, and lecture alternately; after the operation is performed he recommends his powders; I tried several, and detected a strong mixture of camphor in all. Thus he continues, until having remained a short space without a customer, he packs up and moves to another convenient spot.—*Forbe's China.*

Russia.

The territory of Russia in Europe contains one million of square miles, with a population of about 58 millions. In 1772 in all the Russian dominions, it was but 14 millions—an astonishing increase.

The revenue is made up from the tariff, a port tax, a tax on mercantile capitel, stamp duties, and licenses for public houses. It is reckoned at about 80 millions of dollars per annum only. It is supposed that Russia has at this day an army of one million of men; the number is certainly not less than 700,000. Such a force would make a fearful onslaught on Poland, Prussia, Austria, and France, if it was directed thither. It is three times larger than it was during the reign of Alexander. Besides this force there are military colonies established throughout the empire, where the peasants act at once as agriculturists and soldiers. Their numbers are estimated at seven hundred thousand.

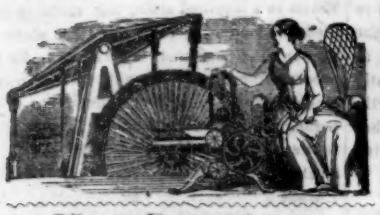
The Russian navy contains 50 sail of the line, 25 frigates, ten or twelve war steamers, 128 brigs, and 500 gun boats. The vessels are fine and showy, but there is on board a want of discipline and cleanliness.

The gold mines of Russia are now producing enormously; so much so as to endanger the comparative value of gold as a standard. Immense sums are deposited in the imperial vaults, and in this respect the sinews of war are already strung. The national debt is about three hundred millions of dollars, but there is a large sinking fund to work upon its reduction.

The peace of Europe evidently depends upon the volition of one man, the Emperor Nicholas.

Thomas Campbell the poet, says that America is the only nation in the world, where the whole population at all times have enough to eat. This is a remarkable fact, and during the present disturbances in Europe will serve to draw immense numbers of all classes from ex-kings to half-starved peasants to this vast and glorious country. Our agriculture will improve rapidly, not less by the increase of numbers to consume its varied products, than by the general diffusion of knowledge among the tillers of the earth.

About a thousand barrels of delicious castor oil are carried down the Mississippi every season.



New Inventions.

New Railway Brake.

Messrs. Morse and Pratt, of Massachusetts, have invented an improved Railway Brake, which is pronounced by those who have seen it to be the best plan of any yet produced. It operates in the most effectual manner, and may be applied to the whole train simultaneously by the engineer, if desired, or by the brakemen. The brake is caused by friction wheels. The whole apparatus is very simple indeed and easily applied. Measures have been taken to secure a patent. We expect soon to receive a drawing of it from the inventors and shall then illustrate the plan with an engraving.

Self-acting Annunciator.

Mr. Ephraim N. Byram, of Sagharbor, L. I., has invented a new and beautiful improvement on Annunciators for Hotels, &c. His model, which has been exhibited to us, displays a principle very different from any in use. The annunciator box, which is placed in the bar room, looks like a chess board, having an empty window for every black square. Connected with this, wires lead to the different rooms, and when a wire is pulled, a bell is rung and immediately the number of the room flies into the small dark window. Connected with the bell, is a clock apparatus, which (when the wire is pulled,) keeps the number card in the window for a few seconds or a minute, as the case may be, and then moves the number back to its former place.—There is no setting of the numbers, the whole apparatus is self acting and requires no attendance. One, two, three or more wires may be pulled at once, and all operated alike, or separately, by the same arrangement Measures have been taken to secure a patent.

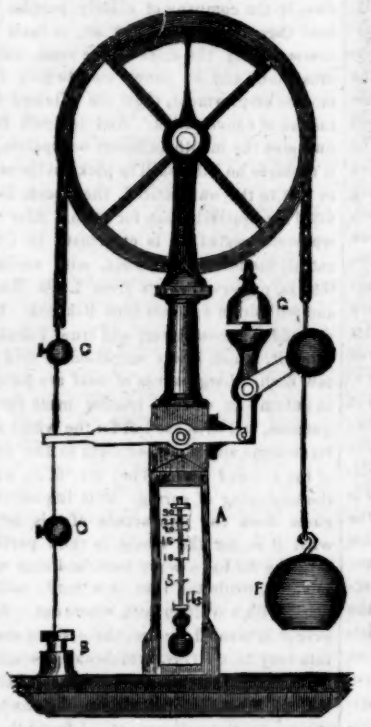
Improvement in Stave Dressing Machines.

We have now a drawing before us of improvements made by Mr. Law in his excellent Stave Dressing Machine, an engraving of which is on page 122 of this vol. Scientific American. The improvement consists in greater simplicity and compactness. We will, however, be able to present a cut of the improvement in some future number, which will better explain the invention.

Printing Warps.

Mr. Cochran, of Paisley, Scotland, has invented an improved method of printing warps on the Jacquard loom. The improvement consists in printing warps of carpets, velvets and other textile materials and a part of his improvement is applicable to the production of colored patterns on woven fabrics or other plane surfaces. With either the Jacquard or with the simple and lashes of the harness loom, he impresses colored patterns upon warps or webs for making carpets. Mr. Cochran employs a box divided into a number of little cells filled with the liquors for the various colors of the yarns, which cells are feeding cells to supply the printing troughs, which are isolated from one another and have a beam above each attached to a pulley for elevating the said beam or lowering it at pleasure. The yarn beams containing the yarn to be printed are placed on the front portion of the framing of the machine and the threads are passed in small bundles through guide eyes carried by a cross rail above the color trough, and they are directed by a grooved guide roller which directs each bundle of yarn in a line with impressers which dip the yarns as they pass in lines into the printing or dyeing troughs. The impressers in number correspond to what the harness weaver calls "the number of cords in a tye," and are made of thin strips of metal with broad knobs at the lower end to give the impression, and they are so arranged on stud pins with springs and levers that the yarn in passing will receive a light or deep impression. The levers of the impressers pass thro' a guide board by strings and thence pass to the wires of the Jacquard machine, holes being cut in the pattern card purposely for this action, and each Jacquard card is made to act upon the levers over the red trough, and in like manner all the colors of the pattern.—There is an arrangement of a tail action to tighten or slacken the impressers by notches on a holly board, but this arrangement is not needed when a machine with a sufficient number of pattern cards are used. In printing by this machine, the Jacquard apparatus is put in motion by a winch handle which communicates with the pattern barrel and each card of separate colors, as it takes its place on the barrel acts upon the lever over the color trough according to the color of the card, red, blue, purple,&c. There are beautiful arrangements all together with this machine—a description of which would be too long for our columns; suffice it to say that it has every appearance of revolutionizing the carpet weaving trade, and standing out and above Whytock's invention as far as Whytock's did those that preceded him.

Self-acting Alarm Whistle and Pressure Guage for Steam Boilers.



The object of this invention is to call the attention of the fireman to any surplus or deficiency of water in the boiler, neglect in such cases being the cause of frequent explosions. The ordinary indicator is a float B, balanced by a weight F, passing over a fixed pulley, as seen in the design here given, but this only shows the same purpose as the glass guage, to show the height of water when the fireman thinks proper to look at it. In order then to attract his attention to any irregularity, an alarm whistle G, is adapted to be worked by the float action. The rising or falling of the float will cause one of the two adjustable studs C, on the float spindle to come in contact with the actuating lever of the whistle In this arrangement very little resistance is opposed to the movement of the float, as a slight touch of the studs will cause the weighted lever to detach itself from the catch The lower part of the supporting pillar A, is made to carry a mercurial guage. This is simply a glass tube hermetically sealed at the top and made steam tight at the bottom by a stuffing box at the top of the mercurial vessel. The lower open end of the tube is immersed in the mercury, upon the surface of which the steam from the boiler is admitted. As the steam pressure increases, the air within the tube becomes compressed accordingly, so that the mercury rises therein in obedience to the universal law of squares, thus indicating the amount of pressure with the greatest exactness. This is an index for the steam pressure, adapted to the balance weight pillar, and giving an instantaneous action to the whistle.

Stoves.

From the great variety of stoves and the multiplicity of Patents, granted from the days of Dr. Arnott to the present day, it would be readily supposed that stove inventions should cease. But this cannot be the case until all admit that perfection is attained in that art, and who does so? "Inventions" as Prof. Douglass has it "beget inventions," and this is just as true of stoves as of any other mechanical production. We have been led to make these remarks from information received of a very ingenious stove invented by G. G. W. Carleton, Brunswick, Maine. It occupies but a small space, and by one arrangement, it is made a wood, or a coal air tight or a draught Cooking Stove, with a large wash boiler and apertures for boiling, and frying kettles, &c., besides affording opportunities for broiling or roasting before an open fire, and with no fear from the smoke or scent of the savory viands being imparted to the apartment. Under a slight change of its arrangements it becomes a common cooking range, capable of performing all the desired offices of that useful appendage and calculated for the use either of wood or coal. Another change and it becomes a grate snugly ensconsed within the jambs of a fire-place filled with bright coals dispensing comfort and cheerfulness to the apartment. Another change and all the comforts of the agreeable open fire-place are secured, not omitting even the convenient mantle-piece. In short it assumes as many different appearances as a harlequin and is very simple, neat and ornamental.

Gimp and Fringe Machine.

We have often admired the French to that of any other kind of gimp cord, and also rich bullion fringes, and tassels. The common kind twists and curls and never hangs smoothly, becoming crimped and curled, after being worn for a short time. This difficulty has been completely surmounted by a machine, which we have seen in operation in this city, the invention of a good mechanic, which can make the gimp cord of any length, covering the silk and satin cord so as to be perfectly soft and free of twist, and spooling it by one operation. It can also by a slight alteration make the worsted twist fringe, and double and twist it as often as desired. The pearl twist cord is also made on it with great facility. It makes the rich bullion cord equal if not superior to any of that imported from France. It always hangs well and does not curl up. The inventor is desirous of selling his machine and invention and favored us with some samples of his work. We can give more information regarding it to letters post paid, or otherwise.

Oil from Rosin.

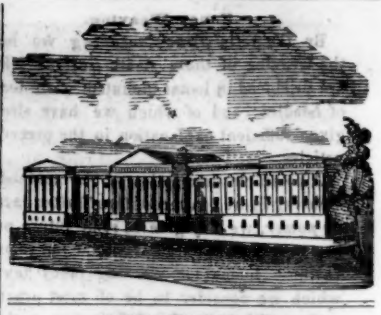
A correspondent of the Boston Post, writing from Newbern, N. C., says there has lately been started in that place a manufactory for the purpose of making oil out of rosin. This is a new discovery and promises to be a new source of profit in the great staples of North Carolina. There are some millions of barrels of turpentine distilled in the State every year, and each barrel makes nearly a barrel of rosin, besides seven or eight gallons of spirits of turpentine. The rosin is not worth half the time the barrels and freight; consequently they let it run out on the ground, fill up gutters, pave streets and wharves with it. By the process lately discovered a barrel of rosin, heated to a certain point, will make nearly a barrel of oil The oil is a reddish color, smells of the rosin, and in consequence of the large amount of carbon it contains, gives out too much smoke for a lamp oil. It burns well, and quite likely some way may be discovered for purifying it to make it an excellent oil for lamps.

[In our next number we shall present the substance of a patent granted last year in England, for a discovery nearly of the same nature as that mentioned above.

Improved Spirometer.

Dr. Hutchinson, of London, has invented an instrument, named the Spirometer, for testing the breathing power, with a view to detect pulmonary disease in its incipient stages.

The atmosphere is composed of nitrogen 4; oxygen 1; laughing gas is composed of nitrogen 2; oxygen 1; aquafortis is composed of nitrogen 2; oxygen 5.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 30, 1848.

To William C. Young, of Baltimore, Md., assignor to Alfred H. Reip, of Baltimore, Md. for improvement in Ice Cream Freezers. Patented May 30, 1848.

To James P. Gage, of New York City, for improvement in Sieves for Sanding Paper.—Patented May 30, 1848.

To David Warren, of Gettysburg, Penn., for improvement in Winnowing Machines.—Patented May 30, 1848.

To David Gallup of Damascus, Ohio, for for improvement in Cooking Stoves. Patented May 30, 1848.

To Robert Wilson, assignor to James T. D. Wilson, both of Houston, Texas, for improvement in Brick Machines. Patented May 30, 1848.

To Edmund Morris, of Burlington, N. J., for improvements in Latches for fastening Doors. Patented May 30, 1848.

To George R. Remington, of Lower Sandusky, Ohio, for improvement in Winnowing Machines. Patented May 30, 1848.

To Charles H. Robinson, of Syracuse, N. Y. for improvement in Hinges for Doors, &c.—Patented May 30, 1848.

To Dexter H. Chamberlain, of Boston, Mass., assignor to Thomas J. Whittemore, of Cambridge, Mass., for improvement in Handles for Awls and other similar tools. Patented May 30, 1848.

To Jonathan W. Ward, of Cambridge, Mass. for improvement in Brick Presses. Patented May 30, 1848.

To Sands C. Carpenter and William A. Peters, of Clifton Park, N. Y., said Peters assignor to said Carpenter, for improvement in Sluice Gates for Locks. Patented May 30, 1848.

To Edward R. Roe, of Shawneetown, Illinois, for improvement in Telegraph Manipulators. Patented May 30, 1848.

DESIGNS.

To John T. Davy, of Troy, N Y., for Design for Cooking Stoves. Patented May 30, 1848.

To Charles W. Warwick, of Philadelphia, Penn., for Design for Stoves. Patented May 30, 1848

INVENTOR'S CLAIMS.

Boot Crimps.

By Cosman White, of Galway, N. Y. Improvement in Boot Crimps. Patented Jan. 12, 1848. Claim.—What I claim as my invention and desire to secure by letters patent is 1st. The before described method of preserving the parallelism of the inner side of the jaws with the outer sides of the tapered crimp board during the operation of raising and lowering the jaws for crimping the upper, by which a uniform and equal pressure is produced upon the leather, by means of the aforesaid combination and arrangement of the dog, screw and plates, with the slotted bars, the curved jaws, operating in the manner and for the purpose described, the said dog being free to play up and down loosely between the form and base of the frame. 2d. I also claim interlocking the ends of the jaws by means of the cogs and mortices, in combination with the oblong mortices in the frame, in which the cogs rise and fall during the operation of the jaws as described. 3d. I likewise claim the manner of connecting the shutters to the plate by means of the socket joints as described. 4th. I also claim making the frame with a curved form, the shape of the lower edge of the crimp board, upon which the leather to be crimped is first placed preparatory to it's being pressed over the crimp board.

NEW YORK, JUNE 10, 1848.

Origin of Letters Patent.

Letters patent derive their origin from the system of the old monopolies which embraced nearly every branch of mechanical art down to the early part of the seventeenth century. These monopolies are to be found protected in the corporate laws of the old boroughs both in Germany and Britain. Monopoly means exclusive right to making, sale, practice and use. The first grants of this kind were those of the ancient free cities of the European Confederations, or made by the crowns. They extended first to certain classes in the practice of certain arts, to which none were admitted to equal privileges except through the provisions of charters granted.—This is the reason why we find all the old cities and boroughs divided into classes, with Mayors to preside over and maintain the rights of the charters. The aim of these grants was undoubtedly to benefit trade and promote the interests of community, hence we find Edward IV. of England granting special privileges to many of the banished Flemings from Flanders, for the encouragement of cloth manufacture. Many such grants, however, were selfish and rather detrimental than beneficial to community. Such as the great land monopolies, which have been fruitful sources of evil in every nation. Patents for inventions and the encouragement of art, are very different from such special grants. The letters patent are given for something that is to be a benefit to community, the other kind of charters are for the benefit of a few to the injury of community. The person who brings into the public stock some new art or trade, which is to be a stream to feed the national treasury of comforts, should receive some reward for his ingenuity, trouble and expense. To reward the inventor for the benefit his invention has conferred on community, and to secure him for his outlay of capital, was the origin of letters patent, not a mere matter of favor certainly, but a just claim upon national polity. Some have contended (and that but recently) that inventors and their heirs should have a continual protection to their inventions to the end of time, upon the property protection principle. But it may be truly said that no man has a natural right to an invention. If one man invents something useful that was unknown to him before, but which had been known before to others, no natural law could prevent him from using his own invention and giving it to whom he pleased. Letters patent, however, do this, and it is therefore plain that for a limited period only, should they exist, and community by our laws protects them for a limited period in order that community should get the benefit of the invention afterwards. "The patentee," says Lord Eldon, "is a purchaser from the public, being bound to communicate his invention to the public after his patent has expired." Patents were in use in England at a very early date, as early as the reign of Edward III., but in all cases they were subject to the action of common law,—and no letters patent granted could be held good, if granted for something that had been used before —The granting of letters patent in our Government was not a new institution, but just a continuance of the English Law, a few alterations having been made, but the main features are essentially the same. Letters patent for inventions, is a matter which originated in a sense of justice to inventors, as well as a wise national policy to encourage trade.

More Novelties in Steam Engines.

We have seen drawings of two steam engines lately put up at Deptford, England, by Messrs. Joyce, named "double cylinder pendulous condensing engines." They are curiosities in their way. The piston rods work below the cylinders and the cylinders are suspended on trunnions, not as in the oscillating kind, but hung at the top as it were, and vibrate like pendulums. They are also combined upon Woolfe's principle, having one small high pressure cylinder and another large condensing cylinder side by side. The steam from the boiler passes through connecting pipes into hollow chamber trunnions, and the open ends lead directly into the valve chests of the high pressure cylinders. At the commencement of the working of the engines, the steam is conducted to the upper end of the high pressure cylinders. At the end of the first stroke both pistons being at the bottom of their respective cylinders, the two slide valves have a reverse position, then the steam from the high pressure exhaust rushes in below the pistons of the low pressure cylinders while the lower ends of the high pressure cylinders receive a fresh supply of steam through their own valve ports. At the third stroke of the high pressure, the exhaust steam from the lower end passes into the upper end of the large cylinder and the exhaust from the lower end of the latter passes off through the hollow trunnions into a vertical condensing pipe leading down to the air pump. Rotary motion has long been sought in steam engines, but as yet, not successfully, so far as we have seen. The oscillating cylinder is a middle step between the reciprocating stationary cylinder and the rotary, and will no doubt supersede in many respects some kinds of engines for many purposes. The pendulum engine, however, although it may be new in England, is not new here, and its combination on Woolfe's plan is all the novelty that we see in it. We have in our possession at this moment a pamphlet kindly sent us by Mr. Enoch Burt, of Manchester, Conn., containing a drawing and a description of a pendulum engine, invented by Ebenezer A. Lester, of Boston. It was in operation at the Navy Yard in Charlestown, in 1830, and it received the highest commendations from many excellent mechanics. It would appear then that some pioneer inventions are being resuscitated long after the inventors should have been rewarded. This is too often the case.

At the present moment there is a steamboat named the Amenia, running between this city and Albany, that is creating no small sensation, both on account of her novelty and speed. She has no superior in swiftness on the river—no equal. She is but small in size but has got a tremendous stroke, being no less than 14 feet, while the diameter of her cylinder is only 34 inches. Thus the length in proportion to the diameter is as 4 8-10 to 1. Mr. Dunham is the Engineer, and the works are well put together. We are not admirers of the long stroke, but must tell the truth as it stands out. The long stroke was a favorite idea with James Watt for a long time and the first engines of his build resembled the one of the Amenia in this respect. For marine engines they would be objectionable, and for wear, we think, inferior, but we shall see—"time will try all."

Pure Water.

It frequently happens that Croton water is neither very beautiful to look upon nor pleasant to drink. After heavy showers, the water is muddy and brown and scarcely fit to drink, being full of impurities In such cases it should always be filtered. This can be done by the many excellent filters for sale, or by making one for domestic use, which can be very easily accomplished. A strong well varnished water box should be made with a division near the middle not extending to the bottom, but to the top. One side of this division should be empty, with a faucet communicating to the outside, and the other side of this division should be filled at the bottom with a layer of washed sand and then layers of charcoal with fine sand on thetop not quite so high as the top of the division board. The water to be filtered is poured upon the top of the sand and charcoal, through which it soaks and rises into the empty chamber, a clear, wholesome and sparkling fluid. A sponge placed in the neck of a strainer makes a very cheap and handy filter, and should not be neglected by those who cannot get any other.—Eighteen cents will thus make a filter that will last six months, and although not so good as the filtering box above described, yet it is better than none. Charcoal is the best purifier. It not only removes impurities of color, but impurities of taste and smell, and a filtering box made as described above will last for a twelvemonth with an expense for charcoal of only twenty five cents.

A New Acid.

A new acid has been discovered by Mr. R. Smith, of Blackford, England, found by a preparation of the *Euphorbia Officinarum*, belonging to the family of the castor oil plant. To obtain it, the plant is cut in small pieces which are digested in water at a gentle heat for about three hours, after which it is filtered and a solution of the diacetate of lead added as long as any precipitate is formed. It is then filtered again and the liquid contains the alkali and the precipitate the acid, which precipitate is diffused in water and a stream of hydrogen gas passed through it, precipitating "sulphuret of lead." It is then filtered the third time and the clear liquid contains the acid which is colorless and perfectly transparent. It does not redden litmus paper, is bitter and of a slightly sour taste, and if allowed to remain on the tongue a little while, it produces a painful sensation. It precipitates the chlorate of tin, but no precipitate with the sulphate of iron. It combines with a few of the alkalies forming salts. The alkaline principle in the liquid mentioned above in the first filtering process, when evaporated and left to cool, forms into beautiful crystals. The acetic acid contained in the diacetate of lead mentioned above, combining with the alkaline principle forms an acetate. The liquid of this which remains after crystalization deposits a brownish gum, which with sulphuric acid produces a deep red color. This acetate in crystals, is insoluble in water and alcohol, but dissolves quickly in nitric acid A small dose administered to an animal destroys life, producing dilatation of the pupil of the eye. It has been named Euphorbic acid.

Knowledge is Power.

In the course of the pacification conference of Sir Harry Smith with the Kaffirs at King William's Town, a voltaic battery was fired on the opposite slope about a quarter of a mile distant. Here a wagon had been placed at three hundred yards distance from the battery, communicating in the usual manner by means of wires. The object of his Excellency was to convey to the Kaffir mind an idea of sudden and irresistable power. Accordingly, on a given signal from him —the waving of a small flag—the discharge instantly took place. The explosion shattered the carriage of the wagon—canting up the body of the vehicle, so that it remained fixed by one end on the ground, at an angle of 45 degrees. The action was so sudden as scarcely to afford time to his Excellency to direct the attention of the Kaffirs to the experiment —but in those who were looking towards the spot and saw the power exercised on a distant object, the surprise manifested was amusing. "There," exclaimed his excellency, "is a lesson for you not to meddle with wagons:—as you see the power I possess, should you do so, to punish you."

Man's Abilities.

No man knows what he can do till he is fully resolved to do whatever he can. When men have thought themselves obligated to set about any business in good earnest, they heve done that which their indolence made them suppose impossible. There are several abilities unknown to the possessor, which lie hid in the mind, for want of an occasion to call them forth.

Iron from Lake Superior.

A small boat which coasted down from Carp River, week before last, brought from the Jackson Iron Works at that place some 600 or 700 weight of bar iron, manufactured there, and which is pronounced by competent judges, who have examined it to be of a very superior quality. It is also their opinion that for the manufacture of steel, from its extraordinary fine grain, it will prove equal, if not superior, to any now used by cutlers at home or abroad. A cargo of Lake Superior Iron will be apt to elicit some attention.

The Scientific American.

We would *again* strongly recommend this excellent Journal to the patronage of mechanics and others engaged in, or having a taste for scientific pursuits. It is probably the most valuable and the cheapest journal—taking the usefulness of its matter into account—of the kind, published on the continent of America. The paper is steadily improving; the number—now before us—of date the 13th inst. is in our estimation, worth in itself, the amount of a year's subscription, which is put at the extremely low charge of $2 There is a short but sensibly written editorial, under the head of "Novelties in Steam Engines," that contains some useful information, resulting from practical knowledge, which we have copied into our present number. We would recommend the publishers to appoint an agent for the S. A. in this city, at the same time intimating our wish to subserve their interests in this quarter, blended as they would then be through the extended circulation of their truly usetul paper, with the interests of Science and Mechanics in this Province.—*Albion, St. John, N. B*

[The spontaneous compliment paid to the Scientific American by our excellent exchange in the Province of New Brunswick, is evidence of an opinion impartial and gentlemanly. We are much obliged to our contemporaries both at home and abroad for the interest they have taken in the Scientific American. It shows the interest they take in the cause of science and the spread of solid and useful information.

For the Scientific American.

Steam and Gases.

There is a vast difference between steam and the gases to be used as a motive power in propelling machinery. Above all the elements steam is the most easily managed.

Steam is just water expanded to 1700 times its bulk by the application of heat to it, and it has the grand quality of being brought instantly back to its natural state by being brought into contact with itself in a cold state. No gas has this quality. What is cheaper than water—what more plenty? Those who suppose that electricity, powder, or carbonic acid gas will supersede water as a mechanical propellant have never studied the subject thoroughly. The great expense of the steam engine is fuel. Well, it will take more fuel to smelt zinc enough to drive an engine one day by galvanism than fuel to raise steam, and the same may be said of powder and other gases. Carbonic acid gas, from its very expansive nature, might be supposed to be superior to steam, but that as well as powder has been weighed in the balance and rejected.

G. R.

British Patents.

During the last three years, no less than 2405 patents have been granted for England, Scotland and Ireland, at a cost of $1,473,400 or an average of $612 each. What would our inventors do, if they had to pay this amount of money for patents.

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Arts, Manufactures and Machinery.

(*Continued from No.* 37.)

Use of Tools by the blind.—Relation of power to time.—The Earth's rotation.—The source of power.—Packing and transport of cotton, by the Chinese and Americans.

Another, although, fortunately, a less general use of Tools for human hands, is to assist the labor of those who are deprived by Nature, or by accident, of some of their limbs. These who have examined the beautiful contrivances for the Manufacture of shoes by Machinery, which we owe to the fertile invention of Mr. Brunell, must have noticed many instances in which the operatives were enabled to execute their work with precision, although laboring under the disadvantages of the loss of an arm or a leg. A similar instance occurs at Liverpool, at the Institution for the Blind, where a Machine is used by those afflicted with blindness, for weaving sash-lines; it is said to have been the invention of a person suffering under that calamity. Other instances might be mentioned of contrivances for the use, the amusement, or the instruction of the wealthier classes, who labor under the same natural disadvantages. These triumphs of skill and ingenuity deserve a double portion of our admiration when applied to mitigate the severity of natural or accidental misfortune, when they supply the rich with occupation and knowledge, when they relieve the poor from the additional evils of poverty and want.

There exists a natural, although, in point of number, a very unequal division amongst Machines; they may be classed as *those which are employed to produce power*; and as *those which are intended merely to transmit power, and execute work.*

The first of these divisions is of great importance, and is very limited in the variety of its species, athough some of those species consist of numerous individuals.

Of that class of Mechanical agents by which motion is transmitted, the lever, the pulley, the wedge, and many others, it has been demonstrated, that no power is gained by their use, however combined. *Whatever force may be applied at one part can only be exerted at some other diminished by friction and other incidental causes;* and it has been further proved that *whatever is gained in the rapidity of execution is compensated by the necessity of exerting additional force.*

These two principles, long since placed beyond the reach of doubt, cannot be too constantly borne in mind; and in limiting our attempts to things which are possible, we are still, as we hope to show, possessed of a wide field of inexhaustible research, and of advantages derived from mechanical skill, which have but just begun their influence on our Arts, and may be pursued without limit,—contributing to the improvement, the advantage, and the happiness of our race.

Of those Machines by which we produce power it may be observed, that although they are to us immense acquisitions, yet in regard to two of them, the powers of wind and water, we merely make use of bodies in a state of motion by nature; we change their directions in order to render it subservient to our purposes, but we neither add to, nor diminish the quantity of motion in existence. When we expose the sails of a windmill obliquely to the gale, we check the velocity of a small portion of the atmosphere, we convert its own rectillinear motion into one of rotation in the sails: we thus change the direction of force, but we create no power. The same may be observed with regard to the sails of a vessel; the quantity of motion given to it is precisely the same as that which is destroyed in the atmosphere.

If we avail ourselves of a descending stream to turn a water-wheel, we are appropriating a power which Nature may appear at first sight, to be uselessly and irrecoverably wasting, but which, upon examination, we shall find that she is ever repairing by other processes. The fluid which is falling from a higher to a lower level, carries with it the velocity due to its revolution with the earth at a greater distance from its centre. It will therefore, accelerate, although to an almost infinitesimal extent, the Earth's daily rotation.

The sum of all these increments of velocity, arising from the descent of all the rivers on the Earth's surface, would in time become perceptible, did not nature, by the process of evaporation, raise the waters back to their sources; and thus again, by removing matter to a greater distance from the centre, destroy the velocity generated by its previous approach

The force of vapor is another fertile source of moving power, but even in this it cannot be maintained that power is created. Water is converted into elastic vapor by the combustion of fuel. The chemical changes which take place are constantly increasing the atmosphere by large quantities of carbonic acid and other gasses noxious to animal life By what process nature decomposes or reconverts these elements into a solid form, is not sufficiently known. The absorption in large quantities of one portion of them by vegetation is to take place; but if the end could be accomplished by Mechanical ferce, it is probable the power necessary to produce it would at least equal that which was generated by the original combustion. Man, therefore, cannot create power, but, availing himself of his knowledge of Nature's mysteries, he applies his talents to diverting a small and limited portion of her energies to his own wants; and, whether he employs the regulated action of steam, or the more rapid and tremendous effects of gunpowder, he is only producing, in small quantity, compositions and decompositions which nature is incessantly at work in reversing, for the restoration of that equilibrium, which we cannot doubt is constantly maintained throughout even the remotest limits of our system.

When a mass of matter is moved a certain force must be expended and upon the proper economy of this the price of transport depends A country must, however, have attained a high degree of civilization before it will have approached the limit. The cotton of Java is carried in junks to the coast of China but from the circumstances of the seed not being previously separated, three quarters of the weight is not cotton. This might, perhaps, be justified by the want of Machinery to separate it in Java, or by the relative cost of the operation in the two countries, But the cotton itself, as packed by the Chinese, occupies three times the bulk of an equal quantity shipped by Americans for their own markets. Thus the freight of a given quantity of cotton costs the Chinese nearly twelve times the price to which, by a proper attention to mechanical methods, it might be reduced.

Peat and Peat Mosses.

Peat or turf, is vegetable matter in various stages of decomposition; but it is more or less mixed with earth and salts. The vegetable matter of peat consists of soluble and insoluble *geine* or *humics*, with a mixture of undecomposed vegetable matter. Its color is brown, sometimes yellowish or reddish, or a dull black. It has a loose texture; is more or less porous, and even spongy. When recently dug, it forms a viscid slimy mass, which by exposure to the air becomes dry, and more or less hard and brittle.

The upper part of peat beds is loose and fibrous, having undergone only a partial decomposition; but on descending, the vegetable fibre gradually disappears, and the peat is more compact. The composition of peat is different in different localities. According to Sir Humphrey Davy, one hundred parts of of dry peat contain from 60 to 99 parts destructible by heat, the remainder consisting of earthy matter and salts. He further adds, that the earthy matter of peat is uniformly analagous to that of the stratum of rocks or soils on which it grows. Where the earthy materials are clay the peat is more compact. The weight of a cubic foot of peat varies from forty to seventy pounds; and the denser variety yields about 40 per cent of charcoal.

Peat is mostly limited to the colder parts of the globe, for, in tropical climates, except on high lands, vegetable matter decomposes so rapidly that it is resolved into its ultimate elements too soon to admit of the formation of peat. In most temperate climates it is very abundant. In Ireland the peat bogs are said to occupy one tenth part of the surface. The great marsh of Montoire, near the mouth of the Loire, in France, is said to contain more than one hundred and fifty miles in circumference. It also exists in large quantities in South America, south of the 45th degree of latitude. In Massachusetts the amount of peat has been estimated to exceed 120 millions of cords. In the Natural History of New York, fifteen counties are noticed that contain greater or less quantities of peat; it is also known to exist in others. In some of these beds it is said to be thirty feet or more in depth.

Peat Mosses increase at the rate of 7 feet in thirty years and it is unquestionable that a considerable portion of the European peat-bogs have been formed since Julius Cæsar invaded Britain; for along the line of the great Roman road, no vestiges of the ancient forest described by that general, can be discovered, except in the ruined trunks of trees in peat. Several of the British forests, which are known to have been cut at different periods, by order of the British Parliament, because they harbored wolves or outlaws, now have their original sites covered by peat bogs.

It is believed by Geologists, that by the long continued action of water, pressure, and perhaps other agents, the geine of peat is changed into bitumen and carbon, which constitute lignite and bituminous coal. Dr. C. T. Jackson, found the process of bituminization considerably advanced in a bed of peat he discovered in Maine. This presents us an index to the formation of the older as well as newer coal beds.

Peat bogs sometimes burst from their beds and move like a wave of desolation over the country. Ireland has been often afflicted with such accidents. After a sudden thaw of snow in Janury, 1831, a peat bog or bed, in Sligo, broke away, and a hundred acres of semi-fluid peat took the direction of a small stream, and rolling on with the violence of a torrent, swept along brush, timber, soil and stones, and overwhelmed a large tract of valuable land on a lower level. On passing through some soft lands, the flood swept out a wide and deep ravine; and where it crossed the road it tore out a channel six hundred feet wide. The great earthquake in Lisbon also set some of the Scottish and Irish bogs in motion and did much damage.

Bog iron ore, or ochre, is often found at the bottom of mosses, and is composed almost entirely of a minute infusory animalcula. In the Wonders of Geology, it is stated that "the fossil animalcula of iron ochre, is only the one twenty first part of the thickness of a human hair; and one cubic inch of this ochre must contain one billion of the skeletons of living beings.

(*Conclusion next week.*)

Matthew Hale and the Poor.

It is said of the excellent Lord Chief Justice Hale, that he frequently invited his poor neighbors to dinner, and made them sit at table with himself. If any of them were sick, so they could not come, he would send them provisions warm from his own table. He did not confine his bounties to the poor of his own parish, but diffused supplies to the neighboring parishes, as occasion required. He always treated the old, the needy, and the sick, with the tenderness and familiarity that became one who considered they were of the same nature with himself, and were reduced to no other necessities but such as he himself might be brought to. Common beggars he considered in another view. If any of these met him in his walks, or came to his door, he would ask such as were capable of working, why they went about so idly If they answered because they could not get employ, he would send them to some field to gather all the stones in it, and lay them in a heap; and then paid them liberally for their trouble. This being done, he used to send his carts, and caused them to be carried to such places of the highway as needed repair.

Porous Brick and Stones.

Let the brickwork become perfectly dry in summer, and give it one or two coats of boiled oil. No wet will ever go through it again.

Natural Productions of Borneo.

Borneo is productive of gold, diamonds, crystals, copper, iron, loadstone, tin, and antimony; diamonds in alluvial soil, and deposits near the base of mountains, also in sandstone, and the sand mountains of Ponteanak (a Dutch settlement) and Banjan-Massing. Gold, is found, in grains, in alluvial soil, and in the sands of the rivers; also in the mines of Salak, Sukadon, Tampazook, Matam, and many other places. Tin is said to be found at Sarawak; copper at Mandore, in Poutianak; rock crystal, called water diamond, at Sulo and Kaman; loadstone at Pulo Bongorong. But none of these mines are worked by Malays. Chinese Emigrants, from Canton, have in many instances made a fine harvest, but at great risk from their treacherous neighbors Nature has been bountiful to this indolent race, fruits of all kinds to be found within the tropics grow wild, as also sago, pepper, and tobacco, which form articles of trade; vegetables are very inferior, for want of cultivation, as is also the sugar cane. They exercise no trades, except those of boat builders, and a few blacksmiths, or armourers The women can sew; but there is no spinning wheel or other household instrument in Borneo. The seas abound in fish, which form the principal animal food. Rice is the staple, while curries of fowls, eggs, or vegetables, are much in use. The flesh of animals, or, as we call it, butcher's meat, is seldom used, excepting dried deer's flesh, which is esteemed a luxury. Sweetmeats are much in demand, made of coarse sugar from the scarcely-cultivated sugar cane, and rice fried in cocoanut oil. Fish is preferred salt, and of a high flavor. They have ducks which they keep for their eggs; and also bullocks and goats, but as Mohammedans, no pigs. Their drinks are either plain water, or sherbet, rice water, and cocoa-nut milk. Tea and spirits are neither made nor allowed amongst these orthodox Musslemen.

Hereditary Propensities in Dogs.

Roulin relates that dogs employed for hunting deer in some parts of Mexico seize the animal by the belly, and overturn it by a sudden effort, at the moment when the belly of the deer rests only upon the fore legs; the weight of the animal thus thrown over being often six times that of its antagonist. The dog of pure breed inherits this disposition, and never attacks the deer from before while running; even should the deer, not perceiving him, come directly upon him, the dog slips aside, and makes his assault on the flank; whereas, other hunting dogs, though of superior strength and general sagacity, which are brought from Europe, are destitute of this instinct. A new instinct has also become hereditary in a mongrel race of dogs employed by the inhabitants of the banks of the Magdalena in hunting the white lipped Pecari. The address of these dogs consists in restraining their ardor; attaching themselves to no animals in particular, but keeping the whole herd in check Now, among these dogs, some are found which, the very first time they are taken to the woods, are acquainted with this mode of attack; whereas, a dog of another breed starts forward at once, is surrounded by the Pecari, and whatever may be his strength, is destroyed by them almost in a moment.

Picturesque Hair-Cutting.

An English traveller in Paris, having occasion for a hair-cutter sent for one. At the appointed time, an elegantly attired person arrived, and the gentleman sat down before his dressing case to prepare for the operation. The man walked round his "client" once or twice, and finally taking a stand at some distance, attentively scrutinized the gentleman's face, with an air of a connoisseur looking at a picture,

"Well," said the Englishman, impatiently "when are you going to begin?"

"Pardon me, sir," was the polite reply, "I am not the operative, but the physiognomist. Adolphe!" he cried out, and a sleeved and aproned barber entered from a hall; "a la Vigil!"

With this laconic direction as to the model after which the gentleman's hair was to be arranged, the artist retired.

TO CORRESPONDENTS.

"E. G. of Mass."—Your spoke cutter must be a valuable machine. We would like you to get a cut of it and bring it at once before the public. Notice next week.

"D. W. of La."—Your letter has been long in reaching here. Your needle must he valuable as an invention. But *is* not the principle of the keys working the letters the same as Brett and Little's, although so far as we can judge from your sketch you have simplified the apparatus.

"J A. of Penn."—We do not see any advantage would be gained by the plan you have suggested for the double wheel. A fair experiment, however, is the only true test.

"T. H. R. of Vermont."—We have seen a model of a wheel having buckets the very same as those in your drawing. At the present moment we do not see where there is room for a patent on this kind of wheel, as no less than 25 have already been patented.

"A. B. of Illinois."—Send us another dollar and procure a copy of the Patent Laws for all countries if you wish to understand how to proceed in taking out a patent.

"T. P. of Mass."—We have drawings now in our possession of an instrument to play any tune whatever, and to be self-acting. Time alone will prove its utility.

"G. W. D. of New York."—We know of no one machine in operation that combines the qualities of turning irregular forms such as lasts, &c., and also scrolls and letters on flat surfaces. We have no doubt but a good machine that would do this would be a benefit to the inventor.

"J. M. O'B. of Maine."—Your invention is not in use so far as we have ever seen or heard of. You will perhaps be the best judge of its pecuniary advantages.

"D. E. S. of Mass."—Your Horse Rake is good. There are some who prefer the spring toothed rake to any other. Both implements are worthy of a patent.

"W. M. D. of Maine."—We will wait for the model—as the the drawings must be so correct as that they can be comprehended in its various parts. You will no doubt conclude with us that this is best.

"H. A. H. of Utica."—We have answered you by mail, and sent the two letters enclosed.

"D. W. of Maine."—The best way to burn bones is to put them in a retort, like the one used to make coal gas. They can be burned, however, in a wood fire perfectly well, as they are composed of the phosphate of lime, they do not mix with the wood ashes. After being burnt they are easy pounded with stampers and the powder sifted through a sieve.

"H. M. of Indiana."—Your letter has come to hand. We have kept your draft as desired. The model had better be sent here and we will do all for your interest.

"C. H. C. of N. Y."—We have answered you by mail. Also, "J. C. of Mass.," and "L. K. of Michigan."

"S. J. P. of Va."—A reaction water wheel will answer your purpose.

"J. W. of La."—We shall notice next week.

"S. B. of Md."—Your invention is like pumping water up hill in order that it might come down again. Why not apply your power at once, instead of losing so much labor to distribute its effects.

"J. J. of New York."—Your letter embraces nothing new that would be interesting to our readers.

"A. F. W. of Pa."—Your money is received and we will attend to your business promptly.

"D. W. of Portland, Maine."—The 30 Nos. will cost you $1,20. Please remit to us.

An excellent article on the use of the "Lickerin on Cotton Cards," from the pen of W. Montgomery, Esq., will appear next week, in answer to E. B. M. of Manchester.

We have a very interesting letter from an able correspondent, giving information where a copy of the ancient mechanical work of Ramelli is to be found. It will appear next week.

A steamer of 300 tons burthen left Montreal on Monday last for Chicago, with a cargo of St. Ubes salt, oil, brandy, salt fish, and other articles, intended as a sort of experimental test, in view of a continuance of the trade with the West, if it should be found practicable.

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A, is the handle; B, the stock; C, the screw; D, the slide, and E, the head.

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Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

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a22 2m* E. RICHMOND, Patentee

Artificial Cold.

Since the days of that dissipated heathen, who in order to cool the air during an oppressive summer, caused mountains of snow to be piled up, and suffered them to melt away, down to the present era, in which there prevails a rage for the thing, mankind has been incessantly in quest of refrigeratives. In those regions where ice and snow are found during winter, it became an easy expedient to store up such treasures of cold for use in warmer seasons; but where, if formed at all, they could be only of a momentary existence, it is manifest that some other means must be employed to supply the luxury of coldness to the noble and wealthy; and thus the art of artificial refrigeration—an art which has to boast of the elaborate researches of the ingenious Robert Boyle, and has occupied much of the consideration of other philosophers before and since—took its origin. We have already taken notice of the now prevalent use and means of procuring beautiful ice for the table, we shall here present a brief sketch of the history, and a short notice of the methods of producing cold artificially.

Cold, as a luxury was far from being unknown to the ancients. The winter's snow or ice was rudely gathered up in heaps, or buried in pits and covered with straw or chaff. But this was a wasteful, and grew to be an expensive method; and it became desirable to have ready means at every season, and independantly of the accidents of the skies, for obtaining the same end. The simplest of these proceeded on the principle of loss of temperature, as a result of rapid evaporation. The Egyptians were accustomed to cool their water by placing it in earthen pitchers, the exteriors of which were kept constantly wet by being sprinkled with water by slaves. It was the habit of one of their luxurious monarchs to have several servants for this office alone, whose duties were to expose the water to cool on the summit of the palace, and constantly supply the royal table with the beverage. Cooling pits were also dug in the earth, into which the water-vessels were placed during the day time, the exterior being well soaked with water, and then surrounded with the fresh leaves of a vine or other plant, evaporation rapidly went on, and the liquid became most agreeably cool. Another method is said to be mentioned by Plutarch, which was by casting into the water a number of small stones, the agitation and consequent evaporation produced by which would probably exercise a slightly frigorific power over the water. It was probably an accidental observation of what could not have failed to have been an every day occurrence, that led to the next improvement in this mode of refrigeration. Many of the earthen vessels of the Egyptians are made of unglazed ware; water placed in one of these was found to be cooler than when kept in other vessels, and the more open and porous the material, the more rapid the transudation of the water, and its evaporation from the surface of the jars, the greater the degree of cold obtained. Water-vases were then formed for that purpose solely; and the invention, unaltered in principle, has come down to the present time with increasing usefulness. Illustrious of the second great chemical law—that liquefaction produces cold—next followed. For ages in India, it had been the practice to cool beverage in that burning climate by dissolving saltpetre in water. From India, the practice made its way into Europe; and Beckmann states that a Spanish physician, Blarious Villa Franca, practising at Rome, first introduced this method of producing cold in Italy about the middle of the sixteenth century. It is related that wine, placed in this mixture, was cooled to a degree making it almost intolerable to the teeth; and this was a considerable step in the history of artificial cold. Other saline substances came into use, and pits were formed, into which, on the large scale, the water to be cooled was put in vessels, surrounded by the cooling mixture. Finally came the important discovery, that an intensely freezing mixture was capable of being formed by mixing snow or ice and salt together. A celebrated physician electrified a large audience by exhibiting its effects upon a bottle of wine, which he actually froze into ice: and this "new method of freezing water" is also mentioned by Lord Bacon. Such are the conditions under which this subject has been handed down to existing posterity.

(*To be continued.*)

Garden Automaton.

At Euston, in Oxfordshire, England, there is a garden with many curious ingenuities, which are very amusing. On approaching a certain spot a hermit rises from the ground, and entertaining one with a "neat and appropriate speech," sinks down like a Jack in a box. There is a small rocky island in the midst of a lake, which is full of watery tricks. The visiter is politely requested to walk up and view this spot, and after satisfying his curiosity, and proceeding to walk down again, the fountaineer bobs down, turns a cock, and sends *jets d'eau* flying on all sides of the victim, one stream having for its object his legs, and another his head. After this reception, he is conducted to look at a spaniel hunting a duck, by the force of water—the automatons diving and pursuing each other by turns. Beyond is a grotto; a hedge of sparkling jets of water rises from the ground to guard it; mimic cascades foam down in tiny cataracts, and countless streams shoot up, and appear to lose themselves by being caught in their return, and not suffered to fall down again. Here, too, a nightingale discourses liquid music, and arched jets of water with one another, and now and then delightful showers tell the visiter that it sometimes rains when the sun shines.

Musical Fishes.

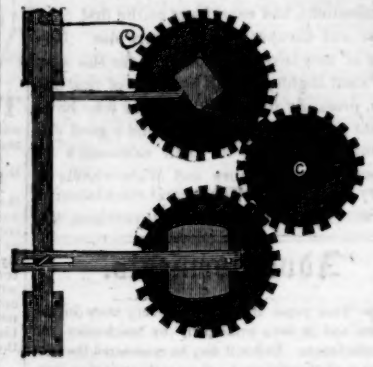
Aquatic animals are generally supposed destitute of the means of making themselves heard; and if they communicate with each other, it is usually supposed that it must be otherwise than by sound. The seal, has, it is believed, a peculiar and distinct cry; and the grampus snorts as it attains the surface. Frogs and other amphibious animals croak loud and long enough; but in all these cases the sounds are emitted, not under, but above the water, and by creatures rarely more than half aquatic. The cetaceous races have warm blood, and suckle their young: and fishes, properly so called, are considered, as we shall presently show, erroneously, a silent race. The long-eared Baalamite is justly reckoned the strangest ass mentioned in history, and a scaly creature emitting sounds may truly be reckoned a very odd fish indeed. A party lately crossing from the promontory in Salsette, called the Neat's Tongue, to near Sewree, were about sunset, struck by hearing long distinct sounds like the protracted booming of a distant bell, the dying cadence of an Eolian harp, the note of a pitchpipe or pitchfork, or any other long drawn-out musical note. It was at first supposed to be music from Parell floating at intervals upon the breeze; then it was perceived to come from all directions almost in equal strength, and to arise from the surface of the water all around the vessel. The boatmen at once intimated that the sounds were produced by fish abounding in the muddy creeks and shoals around Bombay and Salsette; they were perfectly well-known, and very often heard. Accordingly, on inclining the ear towards the surface of the water, or better still by placing it close to the planks of the vessel, the notes appeared long and distinct, and followed each other in constant succession This fish is about the size of a perch.

To Make Superior Potato Bread.

Take eight or ten large potatoes, peel and boil them; when done, make them fine and mix with half a pint of good yeast in the centre of a bowl of flour, say six quarts; set it in a warm place to rise. When quite light, mix it up stiff with warm water, and let it rise a second time; make it into loaves, let them rise, then bake slowly.

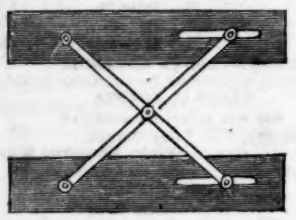
MECHANICAL MOVEMENTS.

Curve Delineator.



This cut exhibits a combination by which a series of concentric curve lines may be described on the square surface attached to the lower wheel by means of a point proceeding from the upright part to the right, which is traversed by the upper wheel at the same time that the square surface is revolved by the lower.

Another Parallel Ruler.



This is another modification of the Parallel Rule. It has no advantage over the one we presented before, only that it has two instead of three rules, and for the closing and opening there is a slot in each rule for the sliding bars to move in, so that the rules may be parallel to one another.

Pruning Peach Trees.

Pruning the peach is very little practiced, simply because its great advantages are generally unknown. Most cultivators however, must have noticed the great difference in the size of the peaches, and still more in their quality, grown in one case upon young and thrifty trees, and in the other on old and stunted ones. Old trees might be rendered thrifty and productive of large delicious fruit if a regular system of pruning were kept up. The tendency in the growth of this tree, when neglected, is to form long and bare branches, with leaves and fruit only at the extremities, shutting out the light from the rest of the tree, attended with slow and diminutive growth. Judicious pruning, by shortening in, commenced while the tree is young, and continued yearly, will preserve a round handsome head to the tree, and young and thrifty shoots will start from all parts of the branches, even down to their very commencement at the upper extremity of the trunk. Old trees have, in some instances, been much benefitted, by the rough and unskilful trimming by winds, and new and healthy branches have sprung up and borne finely on old and stunted trees which had thus been accidentally relieved of a part of their useless limbs A. J. Downing says; "We have seen two trees of the same age side by side, one unpruned, and the other regularly shortened in, and both bearing about four bushels. The fruit of the latter was, however, of double the size, and incomparably finer." A similar experiment, made the past season by the writer was attended with quite as great success.

Strength of Rope.

The following is a rule for finding the weight a rope will bear, with safety:—Multiply the square of the circumference in inches by 200 and it gives the number of pounds the rope will sustain with safety. Example: Required the number of pounds which a rope 2½ inches diameter sustain. The square of 2½ is 6 1-4, which multiplied by 200 gives the desired answer, 1250 lbs.

Ropes made of wire are about three times stronger than the best hemp, the sizes being equal. The strength of Manilla is about one half that of hemp.

Reading and Speaking.

Always when you read or speak, learn to preserve an erect attitude. When you blow through a flexible tube, the air is expelled with more quickness and facility when the tube is straight than when crooked. From the same principle the windpipe, which conveys the breath from the mouth and nostrils to the lungs, and from thence again outwardly, should always be retained in an even and open position. When you read in your chamber never decline your head or body towards the table, but sit upright, and hold the book or paper on a level with your breast. When you speak in public let the whole weight of your body rest upon your legs alone. Keep your throat and nostrils always clear and open. These are the passages through which the breath and voice are expelled, and the smallest obstrustion in them produces an effect similar to what we find in an instrument from the same cause. Those who are not accustomed to expel their breath with the same freedom through the nostrils as through the mouth, pronounce the three nasals—*m*, *n*, and *ng*, very imperfectly, which produce that dull, disagreeable sound which we call snivelling, or speaking through the nose. The latter term is entirely wrong, because it is the defect of *not* speaking through the nose which occasions that impropriety in articulation.—Sometimes this habit arises from an excess in taking snuff, which ought always to be avoided by a public speaker or singer.

Cement.

Ashes 2 parts, clay 3 do, sand 1 do, mixed with oil, will resist the weather equal to marble.

Brown Mortar —One third Thomaston lime, two thirds sand, and a small quantity of hair.

Lime and sand, and cement and sand, lessen about one third in bulk when made into mortar.

Digging.

23 cubic feet of sand, or 18 cubic feet of earth, or 17 cubic feet of clay, make a ton.

18 cubic feet of gravel or earth before digging, make 27 cubic feet when dug

To Exterminate Bugs.

Saturate the parts infested thoroughly with camphene and flour sulphur, and you will not be further annoyed with those troublesome insects. Try it.

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